The Next Generation OPAC in Academic Libraries

By Kim Wallis

San José State University

Ellyssa Kroski

Lib 287

November 2, 2009

Abstract

Make it more like Google is a refrain that is often heard by students at academic libraries when asked how library catalogs can be improved. According to the annual Beloit College Mindset list for the class of 2010 the word Google has always been a verb. It is not surprising students today turn to the web when conducting research as it is what they are familiar with and what they know. How can academic libraries handle the challenge of changing user expectations? Can open source software be used to meet this challenge? This paper will look at the next generation's expectations of the academic library online public access catalog and possible solutions.

Making the academic library online public access catalog (OPAC) relevant to today's next generation user is important to the library's continued livelihood and relevance. "More than a few people within the higher education community are questioning the usefulness, viability, and longevity of academic libraries in an increasingly digital world" (Gibbons, 2007, p. xiii). Academic libraries need to evolve to meet rapidly changing user expectations and to prevent the possibility of marginalization.

In order for the OPAC to stay relevant to today's next generation it needs to keep up with Web 2.0 technologies. To keep today's OPAC from turning into yesterday's card catalog the academic library needs to make changes now. One way to meet the next generation's demand for change is for academic libraries to explore the use of open source software (OSS) tools and technology. An alternative is to convince integrated library system (ILS) vendors that change is important and needs to be made now. This paper will look at the changing expectations of the next generation user in relation to the academic library OPAC and possible solutions.

The next generation

Generation gaps have always existed. Each generation is unique and has its own shared experiences and similarities. Every year Beloit College in Wisconsin puts together a list describing the mindset of new college freshman. Digital cameras have always existed for the class of 2009 and libraries have always been the best centers for computer technology and access to good software (Beloit College Mindset list, 2009a). To the graduating class of 2010 text messaging has always been their email and Google has always been a verb (Beloit College Mindset list, 2009b). The graduating class of 2013 has always been able to read books on an electronic screen and they have never used a card catalog to find a book (Beloit College Mindset list, 2009c).

The next generation has been described as having been born between 1980 and 2003. The terms net generation, millennials, digital natives, echo boomers, and generation me are other labels that are often given to this demographic group. The next generation has grown up on music, computer videos, and games. This generation has spent their entire lives using the web and digital technology has become a central part of their lives. Google, Facebook, Twitter, and texting are often part of their daily routines.

Web 2.0 and Library 2.0

Web 2.0 is a term which suggests a new way that users, including the next generation, use the web. Web 2.0 is characterized by dynamic communities where users contribute content and interact and work with each other. In the Web 2.0 environment companies do not have rigid, predetermined software releases and software is refined and improved on an ongoing basis. There is continuous feedback from users and constant change based on user needs. Web 2.0 suggests a dynamic and constantly evolving environment. “In the Web 1.0 world, a website with its static text and images is the deliverable. In the 2.0 world, however, the Web is just the platform or foundation, which supports the delivery of myriad dynamic services” (Gibbons, 2007, p. 43).

The term Library 2.0 is a response to the revolution of Web 2.0. Library 2.0 follows the example of Web 2.0 by encouraging libraries to use social software to take an active role in communicating with their users. Library 2.0 is about quick turn around and constantly making changes to encourage user participation and reaching out to users in ever changing and innovative ways. Innovation can be accomplished by incorporating such tools as online reference, IM chat, bookmarking, tagging, and rating systems into a library website. To meet users where users are is another way of understanding Library 2.0. Librarians can further jump

into the Library 2.0 arena by adding components to their website such as widgets, mashups, and wikis. Libraries can also enhance searching by incorporating faceted browsing, relevancy ranking, subject clouds, federated searching, spell checking, thesaurus functionality, and noun stemming into their searching tools.

The library OPAC

Library OPACs first emerged in the late 1970s and early 1980s and have gone through several cycles of change and development. The basic purpose of the OPAC is to create a database of library holdings which provides an online catalog to help users easily identify and find resources. The relevancy of the OPAC has started to be questioned in light of today's technology. "At one point in time, the electronic catalog was among the vanguard of online service technology. In fact the OPAC was probably the inspiration for many of the cutting edge services we find on the Internet today" (Fox 2007, p. 242). These services have now surpassed the OPAC as evidenced by features such as Amazon's spell checking, you might like this service or did you mean this service. YouTube's media on demand, social tagging, blogs, wikis, and Twitter have also changed the way users interact with each other and the community around them. With the proliferation of Web 2.0 services the cutting edge technology of the OPAC has eroded. In order for the OPAC to stay relevant to users it needs to keep up with Web 2.0 technologies.

Another concern with the library OPAC is that it is often isolated from the rest of the library website and the web. It can be difficult to conduct a search from the catalog to the web or from the library website to the OPAC. The OPAC may have a different graphic user interface from the rest of the library website and may look different and interact differently with users. This can be confusing to the user when they are trying to search for resources. The user may have to search many different places to access databases, indexes, digital repositories, and the OPAC.

> The virtual seeker must hop from service area to service area to discover resources, request delivery, update personal information, and view content-and that's within a single virtual institution. The process is repeated if another library must be consulted. In the "Amazoogle"' world of convenience, accessibility, and immediate gratification, this environment full of seams and walls is unacceptable. (Wilson, 2007, p .221-222)

The next generation's expectations

The next generation has different life experiences and they communicate differently than other generations. They use terms like lol and cya and they use different tools to socialize. IM chat, text messaging, Facebook, blogs, and Twitter are tools they use to communicate with each other. This affinity for technology manifests itself into new and different expectations about how to discover, gather, interact with, interpret, and share information. Today's college students have different needs as information consumers and different expectations of library websites and OPACs based on their life experiences. What is often termed the Google effect is what this newer generation expects when searching for information. They want and expect answers now.

The University of California libraries (2005*)* report recognizes the changing expectations of college students and states users expect simplicity and immediate reward when using a library's discovery tools. The report recognizes iTunes, Amazon and Google as the standards by which libraries are now judged. "Users want a rich pool from which to search, simplicity and satisfaction. One does not have to take a 50-minute session to order from Amazon. Why should libraries continue to be so difficult for our users to master?" (2005, p. 8). The study further states that users want one system or search to cover a wide set of information and to provide full text availability.

In the 2005 OCLC study *Perceptions of libraries and information resources* surveys were taken to determine what information source respondents would use to begin information searches. Eighty-nine percent of college students started their information search with a search engine and only two percent started their search at a library website. Of the search engines used sixty-two percent of the respondents indicated they used Google to start their searches. If search engines were excluded as a search tool thirty-six percent of college students used a link referenced by the library website. Fifty-two percent of college students indicated that information obtained from search engines was very favorable and information obtained online from a library website was only twenty-seven percent favorable.

Seventy-two percent of all college students surveyed indicated the next time they needed to turn somewhere for an information source they would use a search engine and only ten percent indicated they would use an online library site. A common theme expressed by survey takers was that the OPAC did not offer many features they were looking for such as user ratings or relevance rankings.

> I like the catalog, but if it could reference some sort of rating system it would be even better – I was looking at a new author today who has many books, and I had to go to an internet computer, check on Amazon and see which books were most highly recommended, and go back to the catalog to see if they were available. (p. 1-29)

Other survey comments include the observation that the many different ways to find resource materials on the library website can be overwhelming. Almost twenty percent of the college students surveyed did not know their library website existed and over forty percent stated other websites have better information.

The library ILS

As needs and user expectations change ILS vendors are not always able to quickly grow and change to meet user needs. Systems do not allow the flexibility to make changes quickly and software releases are often rigid and predetermined. Fox (2007) makes the following comments about ILS vendors:

> As needs and complexity has grown, the industry has not been able to develop structures that allow the systems the flexibility required to meet increasing expectations. ILS vendors are so busy trying to build in the latest requirement or tool, for which they have fallen behind on service and support, and the ability to respond quickly to a rapidly changing information landscape. This is also true for the public face of the ILS: the OPAC. As the Internet has become more and more like Google with Google providing a great deal of the innovation, the OPAC has simply become a mirror of the complexity of library resource management. (p. 245)

Breeding (2007) supports this concept of changing user expectations not being met in a timely manner by stating libraries need to move quickly to bring interfaces up to date. When talking about current catalogs he states: “They’ve gained a reputation for being less than intuitive and lacking the features seen in other popular Web sites” (p. 28).

OSS as an alternative

Libraries are often disappointed with ILS vendors and their development process, their lack of support of the library OPAC, and their inability to quickly make changes. A solution to this problem is to turn to OSS to help redesign the library OPAC. With OSS libraries can take control of the look, functionality, and design of their public interface. Changes can be made in a timely

manner to accommodate specific needs. Software releases do not have to follow a rigid timeframe, which is one of the tenants of Web 2.0.

OSS is not necessarily the answer to everyone's problems or concerns. Time still needs to be taken to evaluate OSS products and compare them to vendor products to see if they are really going to meet a library's needs. Even though there is a community available to help libraries with their OSS questions there still has to be knowledgeable staff to develop, maintain and trouble shoot the system. More importantly, this knowledgeable staff needs to have the time to devote to the software. Implementation can be costly due to the learning curve and development time. The learning curve can be steep and there will not be a commercial vendor to answer questions or provide product support. Library vendors offer turn-key solutions and products that can give libraries out of the box functionality. If a library invests a great amount of time, money and energy in OSS the question arises as to whether an ILS vendor will then come along with a similar or better product.

Some librarians argue libraries should be working with ILS vendors to develop more effective OPACs. An ILS is a large, complex, and inter-related system with many parts that require much effort, time, and money to transform. The OPAC is just one piece of the entire puzzle and should be considered part of a whole system. Forsman (2007) believes "an ILS need not be open source to be amenable to fundamental change….The future of the ILS lies in offering a flexible system that allows configuration options within a user-friendly administrative interface" (p. 74). Forsman believes librarians should let ILS vendors develop their systems and librarians should work in conjunction with vendors to help develop a better product for everyone.

There are those who argue that OSS can be used to improve OPACs but information retrieval is still based on the flawed concept of MARC records. A cataloger constructs a MARC record by

placing information such as title, author, publication, item description, subject headings and call numbers in a template. This metadata is used to provide the user with a variety of access points so they can search and locate items. Singer (2008) argues that this metadata in MARC records is not suited for any next generation catalog. "Records are seldom updated. There is also no distinction of discrete concepts within the record: What exists is a blob of metadata about a work with strings indentifying the creator or subject" (p. 140).

Another short coming of MARC records is that they are all displayed more or less equally when user's expectations of different items are different. For example, a map and a music database have different expectations of what they would be used for yet similar labels apply to both items in the catalog. A music database could link to music reviews, information about producers, or biographical information about composers. While MARC records need some fine tuning, or possibly a major overhaul, they still have a great deal of information that can be mined. The key is to make this information accessible and to combine this information with Web 2.0 tools.

Even though using OSS to redesign the library's OPAC has some detractors there are some positive aspects to this approach. OSS is able to meet the Library 2.0 tenant of quick turn around by giving staff the ability to build and manage features which proprietary library systems often do not support. OSS gives larger libraries with internal software development staff the ability to troubleshoot more effectively and to better tailor a system to meet specific needs. By using OSS a library can detach the OPAC from limitations that arise in the rest of the ILS. Components such as indexing, relevancy ranking and faceted browsing can be added without disturbing the ILS underlying and supporting the entire system. Changes can be made to the functionality of the OPAC without intruding on the circulation, acquisitions or interlibrary modules of the ILS. The

software can be downloaded and installed on a test server, loaded with sample data and customized and tested without making any financial commitment.

OSS examples

Some OSS systems such as Evergreen, Koha and OPALS have been developed to replace a library's entire proprietary ILS. There are also OSS solutions which work with a library's current ILS to assist in reengineering the library's searching tools. VuFind and Blacklight are two OSS programs which have been designed to work in conjunction with any vendor ILS.

VuFind was created by Villanova University and was built on the Apache Foundation's Solr project but its interface was built from the ground up. This is beneficial because the product is modular so individual components or the entire system can be implemented. VuFind features include search results in relevancy ranked order, facets for narrowing down results, the display of book jacket images, and user ability to contribute tags and comments. VuFind can also be used as a full scale discovery tool by not just working with the library's OPAC but also by extracting data from other sources (Houser, 2008. p.93). This ability to provide a more complex user discovery tool and a centralized index with searching capabilities beyond the library's OPAC is a key benefit of VuFind.

Blacklight is an experiment by University of Virginia to develop a next generation OPAC. Blacklight uses Apache Solr for indexing and searching records and Ruby on Rails for its front end. Like VuFind, Blacklight can use Solr to index both MARC records and other materials such as digitized images or repositories. The use of Ruby on Rails allows librarians to define behaviors that are specific to certain kind of objects, unlike MARC records which use similar templates for different types of objects. "Music CDs should display track listings from Yahoo

Music, DVDs should display movie posters and movie reviews and DVDs from a specific collection that has been made available online should embed movie clips" (Sadler, 2008, p. 58).

Software applications are not perfect. Library software applications are not perfect. Few systems are all encompassing and can meet each unique library's demands and needs. Every day new innovations are discussed to make library systems easier to use, to incorporate the ability to search many different information sources at once, and to enrich the user's experience. Libraries might benefit from leveraging some of the OSS tools that are becoming more available and more common. Since these OSS tools are modular they can be added to the academic library's OPAC one component at a time without investing a great deal of time or money.

There are many OSS library applications and the list keeps growing and being refined every day. VuFind and Blacklight are just two of the options which are available and that have a growing user community. As the OSS culture continues to grow and spread libraries would be remiss to not consider and explore OSS possibilities. OSS is not for everyone and will not work for every library but there is always room for improvement with library software applications and OSS is a possible avenue for improvement.

Conclusion

The next generation grew up with digital technology and Web 2.0 tools. For them the word Google has always been a verb (Beloit College Mindset list, 2009b). It is not surprising next generation students turn to the web when conducting research as it is what they are familiar with and what they know. To stay relevant to this generation, academic libraries need to rid themselves of the limitations of current OPACs and reconfigure information to work with the web and social networking tools. Academic libraries need to work with the information they have in a structure where Web 2.0 tools can make the OPAC a powerful mechanism that is the

centerpiece of academic libraries. ILS vendors need to be convinced that changing the current status quo is important and needs to be done in a timely manner. An alternative is to use some of the OSS tools that are being developed to enhance and enrich the next generation user experience in academic libraries and to keep the academic library relevant as an institution.

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